

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2006-25513; Directorate Identifier 99-NE-61-AD; Amendment 39-14753; AD 2006-18-14]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce Deutschland Ltd & Co KG Tay 650-15 and Tay 651-54 Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: The FAA is superseding an airworthiness directive (AD) for Rolls-Royce Deutschland Ltd & Co KG (RRD) Tay 650-15 and Tay 651-54 turbofan engines. That AD currently establishes cyclic life limits for certain part number (P/N) stage 1 high pressure turbine (HPT) discs and stage 1 low pressure turbine (LPT) discs operating under certain flight plan profiles. This AD requires calculating and re-establishing the achieved cyclic life of stage 1 HPT discs, P/N JR32013 or P/N JR33838, and stage 1 LPT discs, P/N JR32318A, that have been exposed to different flight plan profiles. This AD also requires removing from service those stage 1 HPT discs and stage 1 LPT discs operated under Tay 650-15 engine flight plan profiles A, B, C, and D, and operated under Tay 651-54 engine datum flight profile, at reduced cyclic life limits, using a drawdown schedule. This AD results from RRD updating their low-cycle-fatigue analysis for stage 1 HPT discs and stage 1 LPT discs and reducing their cyclic life limits. We are issuing this AD to prevent cracks leading to turbine disc failure, which could result in an uncontained engine failure and damage to the airplane.

DATES: This AD becomes effective October 13, 2006. The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of October 13, 2006.

ADDRESSES: You can get the service information identified in this AD from Rolls-Royce Deutschland Ltd & Co KG, Eschenweg 11, 15872 Blankenfelde-Mahlow, Germany, telephone 49-0-33-7086-1768; fax 49-0-33-7086-3356.

You may examine the AD docket on the Internet at <http://dms.dot.gov> or in Room PL-401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC.

FOR FURTHER INFORMATION CONTACT: Jason Yang, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; telephone (781) 238-7747, fax (781) 238-7199.

SUPPLEMENTARY INFORMATION: The FAA proposed to amend 14 CFR part 39 with a proposed AD. The proposed AD applies to RRD Tay 650-15 and Tay 651-54 turbofan engines. We published the proposed AD in the Federal Register on May 4, 2006 (71 FR 26282). That action proposed to require calculating and re-establishing the achieved cyclic life of stage 1 HPT discs, P/N JR32013 or P/N JR33838, and stage 1 LPT discs, P/N JR32318A, that have been exposed to different flight plan profiles. That action also proposed to require removing those stage 1 HPT discs and stage 1 LPT discs at reduced cyclic life limits, using a drawdown schedule.

Examining the AD Docket

You may examine the docket that contains the AD, any comments received, and any final disposition in person at the Docket Management Facility Docket Office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Office (telephone (800) 647-5227) is located on the plaza level of the Department of Transportation Nassif Building at the street address stated in ADDRESSES. Comments will be available in the AD docket shortly after the DMS receives them.

Comments

We provided the public the opportunity to participate in the development of this AD. We have considered the comment received.

Request for Clarification of Flight Plan Profiles

RRD requests we clarify that engine flight plan profiles A, B, C, and D, apply to Tay 650-15 engines, and that an engine datum flight profile applies to Tay 651-54 engines. We agree and clarified the profiles in the Summary paragraph of this AD. It now reads "This AD requires calculating and re-establishing the achieved cyclic life of stage 1 HPT discs, P/N JR32013 or P/N JR33838, and stage 1 LPT discs, P/N JR32318A, that have been exposed to different engine flight plan profiles. This AD also requires removing from service those stage 1 HPT discs and stage 1 LPT discs operated under Tay 650-15 engine flight plan profiles A, B, C, and D, and operated under Tay 651-54 engine datum flight profile, at reduced cyclic life limits, using a drawdown schedule". We also clarified the references to the flight plan profiles and engine datum flight profile in the compliance section.

Change in Compliance Time

In the Notice of Proposed Rulemaking, we required initial compliance with the proposed rule on or before August 31, 2006. Because that date has past, we have changed the initial compliance date requirement to start after the effective date of this AD.

Docket Number Change

We are transferring the docket for this AD to the Docket Management System as part of our ongoing docket management consolidation efforts. The new Docket No. is FAA-2006-25513. The old Docket No. became the Directorate Identifier, which is 99-NE-61-AD. This final rule might get

logged into the DMS docket, ahead of the proposed AD and comments received, as we are in the process of sending those items to the DMS.

Conclusion

We have carefully reviewed the available data, including the comment received, and determined that air safety and the public interest require adopting the AD with the changes described previously. We have determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Costs of Compliance

We estimate that this AD will affect 50 Tay 650-15 and Tay 651-54 turbofan engines installed on airplanes of U.S. registry. We also estimate that it will take about one work-hour per engine to calculate and re-establish the achieved cyclic life for a disc, and that the average labor rate is \$80 per work-hour. We estimate that the prorated cost of the life reduction per engine will be \$15,000. Based on these figures, we estimate that if all of the engines required calculating and re-establishing achieved cyclic life, the total cost of the AD to U.S. operators will be \$752,000.

Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866;
- (2) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and
- (3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a summary of the costs to comply with this AD and placed it in the AD Docket. You may get a copy of this summary at the address listed under ADDRESSES.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the Federal Aviation Administration amends 14 CFR part 39 as follows:

PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive:

AIRWORTHINESS DIRECTIVE

www.faa.gov/aircraft/safety/alerts/
www.gpoaccess.gov/fr/advanced.html

U.S. Department
of Transportation
**Federal Aviation
Administration**



2006-18-14 Rolls-Royce Deutschland Ltd & Co KG (formerly Rolls-Royce plc): Amendment 39-14753. Docket No. FAA-2006-25513; Directorate Identifier 99-NE-61-AD.

Effective Date

- (a) This airworthiness directive (AD) becomes effective October 13, 2006.

Affected ADs

- (b) This AD supersedes AD 2000-08-01, Amendment 39-11687.

Applicability

(c) This AD applies to Rolls-Royce Deutschland Ltd & Co KG (RRD) Tay 650-15 and Tay 651-54 turbofan engines with stage 1 high pressure turbine (HPT) discs, part number (P/N) JR32013 or P/N JR33838, and stage 1 low pressure turbine (LPT) discs, P/N JR32318A, installed. These engines are installed on, but not limited to, Fokker Model F.28 Mark 0100, and Boeing 727-100 series airplanes modified in accordance with Supplemental Type Certificate (STC) SA8472SW (727-QF).

Unsafe Condition

(d) This AD results from RRD updating their low-cycle-fatigue analysis for stage 1 HPT discs and stage 1 LPT discs and reducing their cyclic life limits. We are issuing this AD to prevent cracks leading to turbine disc failure, which could result in an uncontained engine failure and damage to the airplane.

Compliance

(e) You are responsible for having the actions required by this AD performed within the compliance times specified unless the actions have already been done.

(f) Information on the referenced Tay 650-15 engine flight plan profiles A, B, C, and D and Tay 651-54 engine datum flight profile, can be found in RRD Tay Engine Manual, Section 70-01-10.

Calculating and Re-Establishing Within 30 Days, the Achieved Cyclic Life of a Stage 1 HPT Disc or Stage 1 LPT Disc Previously Exposed to Different Flight Plan Profiles

(g) If a stage 1 HPT disc or stage 1 LPT disc was previously exposed to flight plan profile(s) different than the currently operated flight plan:

(1) You must calculate and re-establish the achieved cyclic life for that disc, within 30 days after the effective date of this AD.

(2) Use paragraphs 3.A. through 3.D.(2)(c) of Accomplishment Instructions of RRD Alert Service Bulletin (ASB) No. Tay-72-A1676, Revision 1, dated August 16, 2005, to calculate and re-establish the achieved cyclic life.

After an Engine Flight Plan Profile Changeover, Calculating and Re-Establishing Within 30 Days, the Achieved Cyclic Life of Stage 1 HPT Discs and Stage 1 LPT Discs

(h) After an engine has a flight plan profile changeover:

(1) You must calculate and re-establish the achieved cyclic life for the stage 1 HPT disc and stage 1 LPT disc, within 30 days after the flight plan changeover.

(2) Use paragraphs 3.A. through 3.D.(2)(c) of Accomplishment Instructions of RRD ASB No. Tay-72-A1676, Revision 1, dated August 16, 2005, to calculate and re-establish the achieved cyclic life.

Removal of Stage 1 HPT Discs and Stage 1 LPT Discs From Service Tay 650-15 Engine Flight Plan Profile A

(i) Remove from service Tay 650-15 stage 1 HPT discs and stage 1 LPT discs operated under flight plan profile A, before accumulating 23,000 cycles-since-new (CSN), and replace with serviceable parts.

Tay 650-15 Engine Flight Plan Profile B

(j) Remove from service Tay 650-15 stage 1 HPT discs operated under flight plan profile B and replace with serviceable parts:

- (1) On or before July 31, 2007, before accumulating 21,000 CSN; and
- (2) After July 31, 2007, before accumulating 20,000 CSN.

(k) Remove from service Tay 650-15 stage 1 LPT discs operated under flight plan profile B, before accumulating 21,000 CSN, and replace with serviceable parts.

Tay 650-15 Engine Flight Plan Profile C

(l) Remove from service Tay 650-15 stage 1 HPT discs operated under flight plan profile C and replace with serviceable parts:

- (1) After the effective date of this AD, before accumulating 15,800 CSN; and
- (2) After July 31, 2007, before accumulating 14,700 CSN.

(m) Remove from service Tay 650-15 stage 1 LPT discs operated under flight plan profile C, before accumulating 18,000 CSN, and replace with serviceable parts.

Tay 650-15 Engine Flight Plan Profile D

(n) Remove from service Tay 650-15 stage 1 HPT discs operated under flight plan profile D and replace with serviceable parts after the effective date of this AD, before accumulating 11,000 CSN.

(o) Remove from service Tay 650-15 stage 1 LPT discs operated under flight plan profile D, before accumulating 14,250 CSN, and replace with serviceable parts.

Tay 651-54 Engine Datum Flight Profile

(p) Remove from service Tay 651-54 stage 1 HPT discs operated under the engine datum flight profile, and replace with serviceable parts after the effective date of this AD, before accumulating 12,600 CSN.

(q) Remove from service Tay 651-54 stage 1 LPT discs before accumulating 20,000 CSN and replace with serviceable parts.

Alternative Methods of Compliance

(r) The Manager, Engine Certification Office, FAA, has the authority to approve alternative methods of compliance for this AD if requested using the procedures found in 14 CFR 39.19.

Related Information

(s) Luftfahrt-Bundesamt airworthiness directive No. D-2005-252R1, dated August 31, 2005, also addresses the subject of this AD.

Material Incorporated by Reference

(t) You must use Rolls-Royce Deutschland Ltd & Co KG Alert Service Bulletin No. Tay-72-A1676, Revision 1, dated August 16, 2005, to perform the actions required by this AD. The Director of the Federal Register approved the incorporation by reference of this service bulletin in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You can get a copy from Rolls-Royce Deutschland Ltd & Co KG, Eschenweg 11, 15872 Blankenfelde-Mahlow, Germany, telephone 49-0-33-7086-1768; fax 49-0-33-7086-3356. You may review copies at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA; or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Burlington, Massachusetts, on August 30, 2006.

Francis A. Favara,

Manager, Engine and Propeller Directorate, Aircraft Certification Service.

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